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SCIENCE NEWS LETTER

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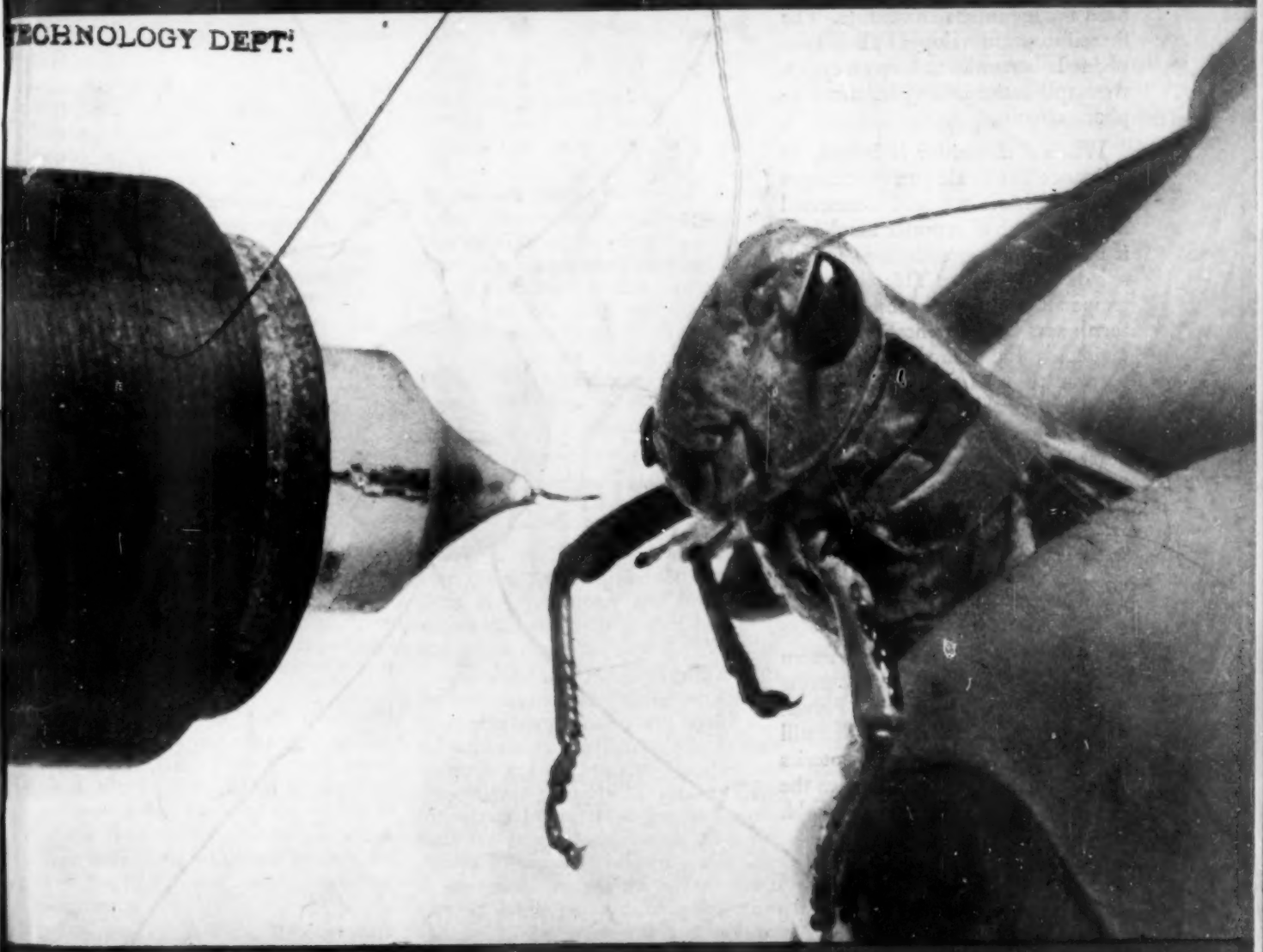


Jumper's Thermometer

See Page 295

A SCIENCE SERVICE PUBLICATION

1921 TWENTY-FIFTH ANNIVERSARY 1946

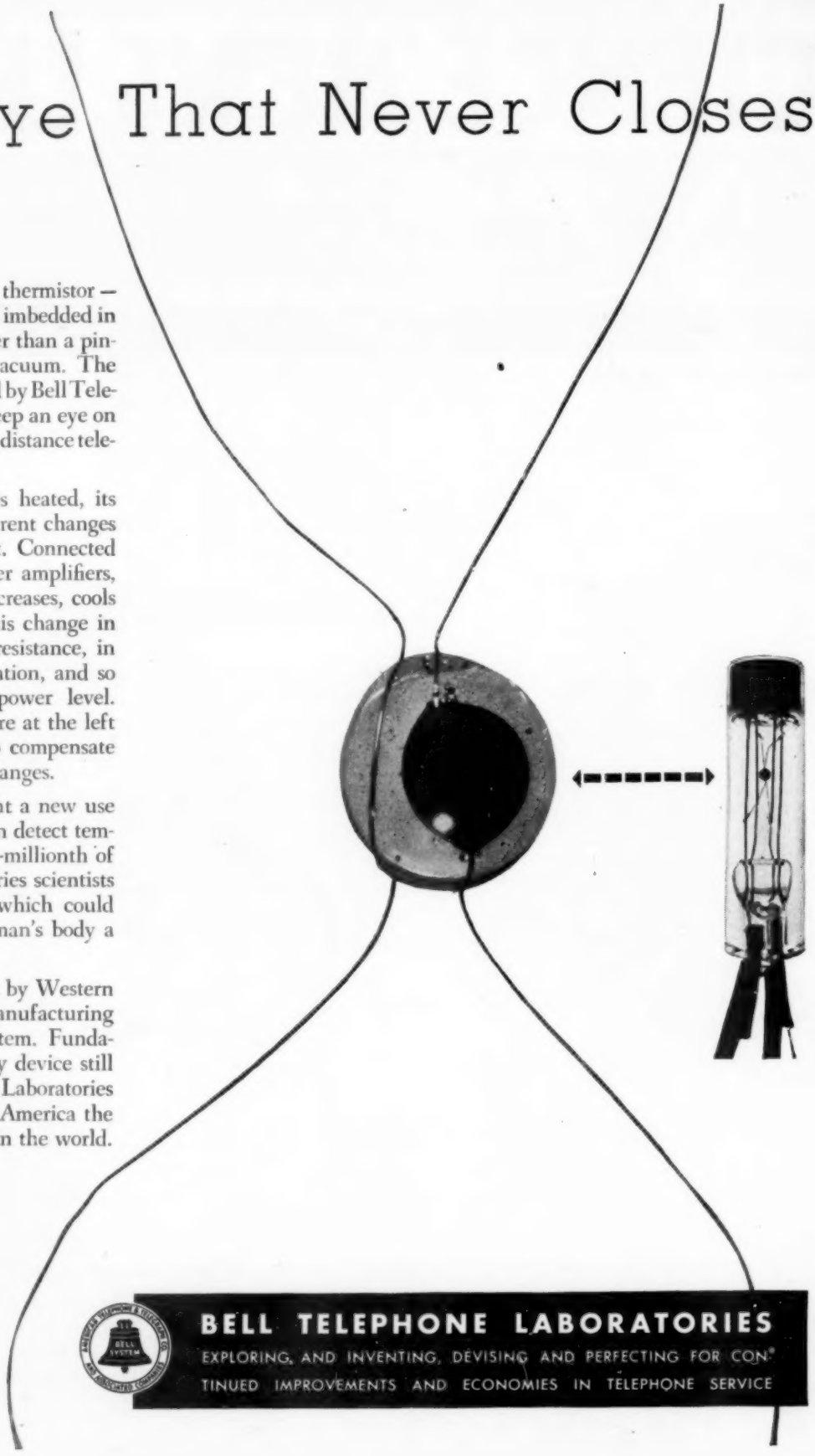
The Eye That Never Closes

You are looking at a thermistor — a speck of metallic oxide imbedded in a glass bead hardly larger than a pinhead and mounted in a vacuum. The thermistor was developed by Bell Telephone Laboratories to keep an eye on the amplification in long-distance telephone circuits.

When a thermistor is heated, its resistance to electric current changes rapidly. That is its secret. Connected in the output of repeater amplifiers, it heats up as power increases, cools as power decreases. This change in temperature alters the resistance, in turn alters the amplification, and so maintains the desired power level. Current through the wire at the left provides a little heat to compensate for local temperature changes.

Wartime need brought a new use for this device which can detect temperature changes of one-millionth of a degree. Bell Laboratories scientists produced a thermistor which could "see" the warmth of a man's body a quarter of a mile away.

Thermistors are made by Western Electric Company, manufacturing branch of the Bell System. Fundamental work on this tiny device still continues as part of the Laboratories program to keep giving America the finest telephone service in the world.



BELL TELEPHONE LABORATORIES

EXPLORING, AND INVENTING, DEVISING AND PERFECTING FOR CONTINUED IMPROVEMENTS AND ECONOMIES IN TELEPHONE SERVICE

MEDICINE

Nobel Prize is Awarded

Award climaxes honors to American, who discovered that genes of the fruit-fly can be destroyed or dislodged to change heredity.

➤ AWARD of the Nobel Prize in medicine and physiology to Prof. Hermann Joseph Muller of Indiana University constitutes recognition of 20 years of solid devotion to one research goal—better knowledge of genes, the ultramicroscopic chemical entities that rule the hereditary makeup of all living things, from molds to men.

Twenty years ago Prof. Muller, then at the University of Texas, discovered that he could destroy or dislodge genes in the reproductive cells of the little fruit-fly, Drosophila, by bombardment with X-rays. New generations of fruit-flies appeared in his rearing cages, with changed eye colors, differently-shaped wings and other sudden evolutionary alterations of the type known as mutations.

He announced his discovery early in 1927. Recognition of its importance came quickly, and at the first midwinter meeting of the American Association for the Advancement of Science following the announcement, he was awarded the $1,000 prize of the Association. Other recognitions and honors followed, to be climaxed by the just-announced Nobel Prize.

For a few years before the war, he was in various European countries, collaborating with fellow-geneticists in their laboratories. He was at Amherst College from 1942 until he went to Indiana University 14 months ago.

Word of the Nobel award came while he was attending a conference on theoretical physics at the Carnegie Institution of Washington. Interviewed at the conclusion of a session, he stated that he is still pursuing the same type of knowledge, and still using the same prolific little insects as material. He has added radium radiations to X-rays as weapons of genetic bombardment.

Science News Letter, November 9, 1946

GENETICIST—Prof. H. J. Muller, who was awarded the Nobel Prize in Medicine and Physiology.

MEDICINE

U. S. To Try BCG Against TB

➤ WHEN 100,000 Americans get vaccinated against tuberculosis some time next year, it will be a vindication of a method of fighting tb which has for almost 20 years been largely repudiated by health and medical authorities in this country.

The vaccine to be used is named BCG. The letters mean bacillus of Calmette and Guerin. These French scientists developed the vaccine at the Pasteur Institute in Paris in the 1920's. It is made from living tuberculosis germs which have been weakened so they do not cause the disease but do produce resistance to it.

A disastrous experience occurred years ago in Luebeck, Germany, when virulent germs accidentally got into the vaccine and the vaccinated children got tuberculosis instead of being protected against it. This helped strengthen the conservative attitude of many American scientists who had already felt it was dangerous to inject living tuberculosis germs into babies and children.

Careful studies of the vaccine, however, have been carried on for some years in this country and it has been widely and successfully used in Europe and South America.

Now the U. S. Public Health Service, on the recommendation of outstanding tuberculosis authorities, will launch anti-tuberculosis vaccinations on a large scale. First to get the vaccine in this new project will probably be persons living in regions where there are no hospital beds for tuberculosis. Under such conditions babies and children are exposed to the germs because the patient has to stay at home, instead of going to a sanatorium for treatment and isolation during the time he is spreading virulent germs.

Nurses and other personnel in hospitals and sanatoria will probably also be given the vaccine for their protection.

The vaccine will be made in this country from a fresh culture to be obtained from the Pasteur Institute. Tests on animals will come before it is given to humans. It will not be made available generally until results of its use in study groups are known.

Science News Letter, November 9, 1946

RADAR

Anti-Collision Radar To Make Flying Safer

➤ ANTI-COLLISION radar, new lightweight equipment compact enough for average commercial and military transports, is now entering final development and production by General Electric. One special feature is its antenna-control by gyroscope.

The new equipment, weighing from 100 to 150 pounds, is designed as a unit, economical in cost and space requirements, suitable for common use in planes large enough to carry five or more passengers, and of the type that can be utilized in present planes by present crews. It is designed to lessen hazards of flying both in overcast weather and in darkness.

It is an improvement over the five-control radar equipment that General Electric has been constructing for the Army. An outstanding feature is the gyroscopically stabilized antenna so that the shadow image on the radar screen or scope is unaffected by the banking, climbing or diving of the plane. This improvement is expected to remove one of the main limitations to general use of the equipment during flight.

The new radar will have about eight times more power than the previous Army model, and its maintenance is simpler. It will also have a wider range. The range of its predecessor, the Army APS-10, is approximately 90 miles.

Science News Letter, November 9, 1946

ARTIST-SCIENTIST—Capt. Charles Bittinger, physicist who painted for the Navy the Bikini atom bomb explosion, shows his picture of Baker explosion to Dr. Vannevar Bush (center), president of the Carnegie Institution of Washington and wartime director of OSRD, and Dr. Edward U. Condon of the National Bureau of Standards at the reception commemorating the hundredth birthday of the Smithsonian Institution.

MEDICINE

Erythrin vs. Diphtheria

Penicillin-like antibiotic comes from red blood cells of rabbits. Discovery may open a whole new branch of science of antibiotics.

➤ A NEW penicillin-like drug extracted from the red blood cells of rabbits and other animals is now under clinical trial as a weapon against diphtheria in several Moscow clinics.

First-hand account of this new development in disease-fighting is being given American scientists by Dr. Vassily V. Parin, secretary general of the Academy of Medical Sciences of the USSR and professor of physiology at the Third Moscow Medical Institute. Dr. Parin is visiting here at the invitation of Surgeon General Thomas Parran, U.S. Public Health Service.

Erythrin is the name of the new antibiotic. It is the first such substance extracted from higher animals. Penicillin comes from a mold and the famous KR anti-cancer vaccine under trial in Russia comes from a protozoa, but this form of animal life is very low in the animal kingdom.

The new antibiotic from rabbit blood cells was discovered by Dr. L. A. Silber of Moscow. It is very effective against different kinds of disease germs and particularly against the germs of diphtheria.

Diphtheria patients and healthy carriers of diphtheria germs are at present being treated with erythrin. The antibiotic gets its name from the medical name for red blood cells, erythrocytes. Red cells from other common laboratory animals, such as guinea pigs and white rats, also are sources of the substance but Dr. Silber has found the erythrin from rabbits the most effective.

A whole new branch of the science of antibiotics may be opening as a result of this discovery, Dr. Parin stated.

The KR vaccine, he emphasized, cannot be recommended for use on cancer patients yet except those treated under the personal supervision of Dr. Nina Klueva, who with her husband, Dr. Gregory Roskin, developed it from trypanosomes, germs that cause Chagas disease. Some but not all of the few breast and skin cancer patients treated have recovered clinically. Not unless and until they have remained free of cancer for five years, however, will doctors in Russia or elsewhere be satisfied that the vaccine is a cure for cancer. So far, it is only a few months since these patients have been treated. No patients with internal cancers have yet been helped by the vaccine.

Science News Letter, November 9, 1946

The first wire suspension *bridge* in America was built 140 years ago across the Schuylkill river near Philadelphia.

Solutions containing 5% *rotenone* will destroy over 90% of the cattle grubs and all of the lice on the animals treated.

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ASTRONOMY

Sun-Spectrum Lengthened

Radiations of the sun up to 65 miles above the earth's surface, past the ozone, were photographed by equipment carried in V-2 rocket.

➤ RADIATIONS from the sun, never seen before, have been photographed.

Much may be learned about the sun, our primary source of energy, because of photographs taken of the sun's spectrum by a camera carried high into the air by the V-2 rocket fired on Oct. 10. About 40 of these spectrograms, made at increasing altitudes up to 65 miles above the surface of the earth, are being studied at the Naval Research Laboratory in Washington, D. C.

The new lines in the sun's spectrum are being identified and their intensities calculated. Scientists estimate that a full year will be needed actually to analyze the data.

The spectrograph used to extend the sun's spectrum was mounted on a rocket fired at the Army's White Sands Proving Grounds in New Mexico. The Naval Test Unit and Army Ordnance Department at White Sands worked together in conducting these experiments.

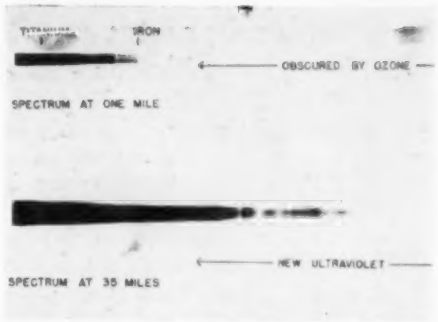
As the rocket rose, the spectrograph operated continuously, producing a series of photographs at various altitudes up to 65 miles. Rotation of the rocket turned the spectrograph away from the sun above that height, so spectrograms could not be made.

The sunlight that reaches the earth is filtered by the ozone in the atmosphere, most of which is concentrated near the earth. Only a small proportion of the shorter wavelengths, those lying on the X-ray side of the visible spectrum, ever reaches the ground surface.

Since life on the earth's surface would almost certainly be destroyed by these shorter wavelengths in the solar radiation, it is quite fortunate that they are stopped by the ozone layer. But the blacking out of the lower end of the spectrum is tantalizing to the scientist.

In the past much has been learned about the sun from careful studies of the sun's spectrum obtained at the earth's surface. Helium, for instance, was discovered in this manner on the sun before it was found on the earth. These new spectrograms may give new clues to the nature and quantities of the various elements composing the sun.

Science News Letter, November 9, 1946



ABOVE THE OZONE—The sun's spectrum has been extended many Angstroms through photographs taken from the V-2 rocket. The spectrum of the sun taken 35 miles above the earth's surface is compared above with one photographed at one mile. Official U. S. Navy photo.

PSYCHIATRY

Democratizing Germans

➤ IF WE CAN teach the Germans that children are people, not puppets, and that presidents and other political rulers are also people, we shall have taken a big step toward weaning them from Nazism. That this can be accomplished was shown from results of the democratization program among German prisoners of war at Fort Getty, Rhode Island, reported to the National Committee for Mental Hygiene meeting in New York.

The prisoners in this first experiment of its kind learned to have more warmth in personal relationships. From that step, they came to a more human and less literal idea of public affairs, Dr. Richard M. Brickner, psychiatrist of New York, reported.

Before their indoctrination in democracy the typical prisoner took authoritarianism as a natural thing because he was used to it from childhood. The father was the tyrant who exercised authority for authority's sake and the son grew up anxious to be old enough to get even by bossing someone else. All the buried hostility toward fathers was vented upon this somebody else.

Talking to Germans about war guilt is like talking Sanskrit, Dr. Brickner said. They do not feel any guilt because the structure of German society is a hierarchy, where each man has a superior and an inferior. The weight of the guilt is distributed through the hierarchy which can absorb it like the beams of a building so it does not become too great for an individual to bear.

Science News Letter, November 9, 1946

GENERAL SCIENCE

Draft Almost Ruined War Science Projects

➤ THE MIRACLES of science that brought victory to America and her allies in the war came close to not happening at all, thanks to the almost incredible genius for "snafu" exercised under the misnamed Selective Service system. Local draft boards, blindly filling their quotas with all the men they could grab, regardless of their training and special values to the war effort, kept trying to send research men to camp to train as infantrymen. Top rank scientists in Washington had to spend hours and days of their valuable time fighting to get their helpers back again.

These disturbing facts are disclosed in *Scientists Against Time,* first official account of the work of the Office of Scientific Research and Development, by James Phinney Baxter 3rd, published by Little, Brown and Company.

Dr. Vannevar Bush, commander-in-chief of American research forces, wanted a National Service Act that would make the special training and talents of men available where they would do the country the most good. Instead, the Congress passed a Selective Service measure calculated to produce the most fox-hole diggers. That the OSRD was able to produce such war-winning devices as rockets, radar, amphibious vehicles, and finally the atom bomb can be credited to the persistence of scientific workers in the face of mismanagement.

Science News Letter, November 9, 1946

AERONAUTICS

New Glider Operates With Revolving Blades

➤ A STRANGE air "bird" has been revealed. It is a craft without wings or engine. It is a type of glider that is eased down to the earth by the rotating action of horizontal revolving blades.

This experimental model is a simple affair, merely a framework of pipes arranged like a pyramid with three landing wheels under it and an open seat within for the pilot. The autogyro blades are mounted at the top, and are controlled by levers within easy grasp of the pilot. A vertical tail extends to the rear. It weighs only 120 pounds but can carry a load of 300 pounds.

This revolutionary glider was developed at the General Electric Flight Test Center. It is called the G.E. Gyro-Glider. In use, it is towed aloft by a plane and released from various altitudes like a standard glider. It descends with less speed than a parachute. This is due to the rotation of the nine-foot blades caused to revolve by the air pressure as it descends. It can land on a small spot, and land so gently that its cargo is uninjured.

In tests the Gyro-Glider was put in the air by being towed behind a jeep. It rose 100 feet. Its commercial application will be to reach isolated areas without adequate landing fields.

Science News Letter, November 9, 1946

NUTRITION

Sauerkraut Is Excellent Vitamin C Source

➤ FERMENTATION that takes place in the making of sauerkraut has little if any effect on the product's excellent vitamin C content, reports Dr. C. S. Pederson of the New York Agricultural Experiment Station at Geneva.

Some loss of the vitamin occurs during storage of kraut, according to his findings, but in an examination of 226 cans of kraut the majority showed a vitamin C content that topped the average for tomato juice.

His experiments also show that kraut may be "fortified" with vitamin C by adding crystalline ascorbic acid in the preheating tank or by adding uniform-sized tablets of ascorbic acid to the containers before filling.

Science News Letter, November 9, 1946

One problem in the atomic bomb project was to make pure *fluorine*.

POWERLESS CRAFT—This Gyroglider, without wings or engine, developed by General Electric, is being towed by a jeep.

MEDICINE

Plague Is Still a Menace

Modern medicine and living conditions have reduced death from plague, and urban communities need fear little from it.

➤ PLAGUE, while virtually conquered by modern communities, still looms on the medical horizon as a grim threat in any major disaster to civilization.

This is indicated by Dr. Karl F. Meyer, noted University of California bacteriologist, who says that while the mortal Black Death of the middle ages appears to be as virulent and more widespread than at any time in history, its harvest of death has been cut to a negligible point by modern civilization.

Obstacles placed in the path of plague, outside certain parts of Asia, include good housing, sanitation, quarantine, and supervision of the infectious sick. More recently new weapons of modern medicine have been added, including the sulfa drugs and streptomycin, with the promise that epidemics may be halted almost before they start.

Dr. Meyer says that laboratory experiments at the University of California and elsewhere and reports from India on the use of sulfadiazine indicate that the rate of fatality among persons who have contracted the disease can be cut to a small percentage. The laboratory research also indicates that the dosing of healthy persons exposed to plague reduces the possibility of their contracting the disease to a small percentage. Preliminary studies with streptomycin indicate this anti-biotic may be even more effective an agent against plague.

Dr. Meyer says that the disappearance of plague from Western Europe after the London epidemic of 1666 with its 70,000 deaths is still a mystery, but it gave science an opportunity to grow up and mobilize weapons against it.

The disease appeared in epidemic form again in 1894, at Hongkong, and quickly spread all over the world, concentrating in particular areas. When it appeared in China the plague bacillus was quickly isolated and identified and serums were developed against it. Perhaps even more important, its mode of transmission was determined; it is carried by rats in cities and by squirrels and mice in field and forest, and the bacillus is spread among these and to man by flea bites.

Dr. Meyer warns that vigilance must not be relaxed against plague, in spite of the potent defenses against it. Rodent control and flea eradication, the latter with the aid of DDT, must continue.

Urban communities need fear little from plague today, but a constant source of potential outbreaks in rural areas lies in wild rodents. Reservoirs of plague from this source exist in 14 states west of the Mississippi.

Science News Letter, November 9, 1946

TELEVISION

New Color Television

Electronic television, now successfully established in principle, awaits manufacture of transmitters and stations before available to the public.

➤ COLOR television by an all-electronic means is now a fact. It is a complete departure from television in mechanical color which has been shown in various forms during the past few years.

It uses a color-slide television camera, developed by the Radio Corporation of America, which produces signals from 35-millimeter Kodachrome slides. Transmission of the picture on the slide is achieved in natural colors when a light beam from a kinescope is focused through the slide and separated into component colors by a system of mirrors and photo-electric cells.

Each of the three transmitted images, red, blue and green, is of the same number of lines, 525; also the same horizontal scanning rate and the same picture repetition rate of 30 pictures a second as in present commercial television broadcasting.

The receiving set has three kinescopes, which separately receive the signals representing the three colors. From them the three color images are optically projected into a bright composite picture which appears on a 15-by-20-inch screen in natural color.

Broadcasts from color stations using this electronic simultaneous system can be received clearly on present black-and-white receivers by the addition of an easily installed radio-frequency converter, RCA officials state. No modifications are required inside the set. The pictures will be received in black-and-white, however, not in color. It means that these black-and-white receivers are usable even if broadcasting stations transmit only the ultra-high frequencies of electronic color television.

It will take several years to establish electronic color television as a service to the public. The present equipment is experimental, but establishes the principle. Time will elapse before production of commercial transmitters and receivers can begin. Then broadcasting stations will have to be provided. The new RCA electronic color television system will be made available to the entire radio industry, David Sarnoff, president of the corporation, states.

Science News Letter, November 9, 1946

"TRINOSCOPE"—Heart of the RCA television receiver has three simple projection lenses through which images in red, blue and green appearing on three kinescopes beneath the lenses are projected in natural color on the screen at the top and front of the cabinet.

MEDICINE

Don't Overuse Nose Drops

➤ WITH THE WORST season for colds and sinus trouble approaching, many persons need to be reminded of the danger of abusing, or over-using, nose drops. Physicians call these drops nasal vasoconstrictors. The continued use of them is drug addiction, Dr. Clifford F. Lake of the Mayo Clinic declares.

Briefly, here is what happens. Nose drops, or nasal vasoconstrictors, relieve the stuffy, congested nose and let you breathe more comfortably by shrinking, or constricting, the blood vessels in the lining of the nose. If this constriction is a severe and prolonged one, as it can become from frequent, continued use of the nose drops, the process goes into reverse. The blood vessels are dilated and you can get a worse stuffiness and congestion than before.

At this point, the ignorant user of nose drops uses them more often and perhaps even changes to a stronger kind. Soon, like the typical patient described by Dr. Lake, the nose gets into such a condition that it is necessary to put drops in every two or three hours. The victim of this nose drop addiction begins to feel he cannot get along without the drops, that he will be unable to breathe and sleep, and some even say that they will die.

If you get into this state, you should see a doctor without delay. He will doubtless advise you to stop the nose drops but he may give you something to help you sleep the first few nights because at first your nose will be stuffier than ever after stopping the nose drops. By the end of a week you should be breathing quite freely without them, unless there is some mechanical obstruction, which the doctor will search for.

Science News Letter, November 9, 1946

ENTOMOLOGY

Body Temperature of Grasshoppers Taken

See Front Cover

➤ TAKING A grasshopper's temperature may save thousands of dollars in the farmers' war against the pests.

Profs. J. H. Pepper and E. H. Hastings of Montana State College use a delicate electrical instrument, 5/1000 of an inch in diameter, to take a grasshopper's temperature as a part of a study of when and where the insects eat. A victim is pictured on the cover of this SCIENCE NEWS LETTER. This information will aid in locating poison bait where it will be most effective against the hoppers.

The scientists believe that a grasshopper's feeding habits depend on a relationship between the intensity of sunlight, the temperature of the air and the insect's body temperature. Experiments and studies of the effects of sunlight and air temperature were relatively simple, but a special thermo-couple had to be devised to get the body temperature of the grasshoppers. The device developed by General Electric engineers can be inserted into the grasshopper without damaging the specimen and minimizes the sources of error.

Science News Letter, November 9, 1946

AERONAUTICS

Internal Cooling Liquid Adds Take-Off Power

➤ MORE TAKE-OFF power and a greater load for planes is possible with the use of an internal cooling liquid in the engine, wartime research of the National Advisory Committee for Aeronautics disclosed. The discovery was made public with the release from military security of a report on research conducted by Addison M. Rothrock at the Aircraft Engine Research Laboratory, Cleveland.

Ammonium hydroxide was the liquid coolant inducted through the inlet manifold of the plane's engine. Its use permits 25% more take-off from the fuel. This means an approximate usable increase of 8.5% in the take-off load and increases the plane's rate of climb.

The increase in load is equivalent to an increase in the weight of gasoline carried of between 30% and 65%.

Water used alone as the cooling agent might freeze in cold weather or at high altitudes, so ammonia was mixed with the water to lower the freezing point. Mr. Rothrock says that other coolants may be used depending on availability and ease of handling as well as engine performance.

Science News Letter, November 9, 1946

PSYCHIATRY

1930 Depression Caused Mental Illness Today

➤ MENTAL CRACK-UPS today are not necessarily due to the stresses of the atomic age. They may be caused in many cases by the depression of the 1930's, in the opinion of Dr. Robert Felix, mental hygiene chief of the U. S. Public Health Service.

Children of the depression had their emotional make-ups warped by the frustrations and stresses of that experience. They developed faulty patterns of living which make them unable to meet the strains of present day life. Men and women who were young adults at the time of the depression and cracked then but somehow kept going are now on the down grade because they have reached the middle years of life when early emotional stresses often take their toll.

Better mental health for prosperity or depression if it comes again can be achieved through the National Mental Health Act. By this mandate from Congress we are to have mental health clinics, personnel to staff them and a public educated to use them at first attack of butterflies in the stomach or any other sign of beginning mental illness.

Training not only of more psychiatrists, but of general practitioners, nurses, social workers, clergymen, lawyers and teachers in the mental health aspects of their work is another aim of the program as Dr. Felix outlined it to the Women's National Press Club.

Given a few years in which to get the program well under way, Dr. Felix thinks we can get through another "recession" without havoc to the mental health of the population. But if the recession comes soon, Dr. Felix said he would "sit in a cell and pray" because there would be nothing else he could do with the present pitifully small handful of clinics and personnel to handle the load of mental illness such an experience would bring.

Science News Letter, November 9, 1946

BACTERIOLOGY

Germs Won't Get Resistant To All Antibiotic Remedies

➤ FEAR that penicillin, streptomycin and other antibiotic remedies will sooner or later become useless is somewhat allayed by studies carried on in the laboratories of Ohio State University.

As germs get used to penicillin through repeated contacts in the patient's body, they grow resistant to it. But if the test-tube studies reported in the journal *Science* (Oct. 25) are verified in living animals, doctors can switch from penicillin to other antibiotics, or the reverse, and cure the patient in spite of the germs' resistance.

In the research, resistant strains of two bacterial species, the boil-causing *Staphylococcus aureus* and the colon bacillus, *Escherichia coli*, were built up by exposing successive sub-cultures to increasing concentrations of each of the three drugs, penicillin, streptomycin and streptothricin. Then each kind was exposed to various concentrations of the two compounds not included in its "ancestral conditioning." With only a single exception, all of the resistant strains proved non-resistant to both of the other drugs to which they had never had a chance to become accustomed.

The research was carried on by a team consisting of Miss Marguerite Sullivan, Prof. Grant L. Stahly, Prof. Jorgen M. Birkeland and Dr. William G. Myers.

Science News Letter, November 9, 1946

IN SCIENCE

RADIO

FM Sets Will Be Made For General Public

➤ BECAUSE the Federal Communications Commission has decided to make no further changes in the wavelengths assigned to FM (frequency modulation) radio broadcasting, watch for these developments:

Manufacturers will start making FM sets for the general public.

Radio broadcasters will build and erect transmitters.

Until the freezing of the FM frequencies, manufacturers were afraid to start manufacturing and broadcasters were not sure what kind of stations to build.

FM broadcasting differs from the standard kind mainly because it operates on very high frequency portions of the radio spectrum. The principal advantages of these frequencies is that they are practically static-free. The range of FM stations is the same day and night, but the range is limited under ordinary conditions to about 100 miles.

Frequency modulation was developed before the war. There are now over 60 FM broadcasting stations, and nearly 600 more have been authorized by the FCC. The band now assigned by the FCC to FM broadcasting is from 88 to 108 megacycles.

Science News Letter, November 9, 1946

GEOPHYSICS

War Helped, Retarded Knowledge in Geophysics

➤ WAR GREATLY speeded the development of certain branches of the science of geophysics, but hampered others, Dr. James B. Macelwane, S. J., of St. Louis University, told the meeting of the National Academy of Sciences. Greatly increased facilities for weather forecasting were needed for military purposes, and meteorology was pushed into correspondingly accelerated development. On the other hand, knowledge of earthquakes and their causes had little immediate practical value, so that seismological reporting and research was perforce neglected.

Science News Letter, November 9, 1946

NCE FIELDS

NUCLEAR PHYSICS

Double Weight Neutron Believed to Exist

➤ THE EXISTENCE of a double weight neutron, twice the mass of the neutron that sets off the atomic bomb, is suggested in a report to the American Physical Society by two University of Texas physicists, M. Y. Colby and R. N. Little, Jr.

Not yet discovered, the heavy neutron might result from the action of double weight hydrogen upon triple weight hydrogen. This reaction has not yet been tried because tritium, as triple weight hydrogen is called, is just now becoming available in sufficient quantities. Double weight hydrogen is called deuterium, and it is the hydrogen that heavy water is made from.

Discovery of the dineutron would result in the possibility of obtaining new and important knowledge of the binding energies that hold the nuclei of atoms together. This would be of extreme importance in all further advances in nuclear or atomic energy.

Science News Letter, November 9, 1946

ASTRONOMY

Astronomers Continue International Cooperation

➤ WHILE MILITARISTS were setting the stage for World War II, scientists in their respective countries carried on the tradition of international cooperation. And now that the shooting has stopped, they have resumed their interrupted programs and initiated new ones, Prof. Harlow Shapley, director of Harvard College Observatory and president of Science Service, told the meeting of the National Academy of Sciences.

As a concrete example, he pointed to the work of astronomers of 24 countries, with Germany, Japan and Italy very prominent on the list, in making precision observations on the erratic asteroid Eros during the prewar decade. Calculations based on their data, completed in 1941 by the Astronomer Royal in London, determined the distance from earth to sun with a new degree of precision.

As an example of the new international cooperation, Dr. Shapley mentioned the action of authorities in Eire and Northern Ireland, who have joined with Harvard to set up a telescope of new and unique type on a kopje in South Africa. Harvard now collaborates in astronomical work in the Netherlands, Denmark, Mexico, Eire, Northern Ireland, the USSR, and on the Cape of Good Hope. The Harvard Observatory staff itself is a highly international body, with scientists from 15 nations at work; three more nationalities have to be added when the over-all payroll is considered.

Future international cooperation is already under way along several lines. All American astronomical observatories are working together to restore the astronomical libraries in Poland, which were totally destroyed during the war. The International Astronomical Union, badly disrupted during hostilities, is being reconstituted. The United Nations Educational Scientific and Cultural Organization is being urged to replace with a great international observatory all ruined and damaged European observatories.

Science News Letter, November 9, 1946

MEDICINE

Two Types of Common Cold Follow Exposure to Germs

➤ DISCOVERY that there are at least two types of the common cold, just as there are two or more types of influenza, is announced by Dr. John H. Dingle and associates of Western Reserve University School of Medicine.

One kind starts in the nose, developing 24 to 48 hours after exposure. The other begins with a sore throat five to seven days after exposure.

Hope of a vaccine to protect against colds seems limited at present to the sore throat kind. The conscientious objectors who volunteered as human guinea pigs for the studies developed immunity to the sore throat virus after having this kind of a cold. But they "caught cold" again when inoculated with the virus of the nose cold after a previous attack of nose cold. Having one kind of cold did not build up immunity, or resistance, to the other kind.

Dr. Dingle's studies were made at Fort Bragg, N. C., while he and Drs. Charles H. Rammelkamp, Jr., George F. Badger, Alto F. Feller and Richard C. Hodges, were members of the Army's Commission on Acute Respiratory Diseases.

Science News Letter, November 9, 1946

OPTICS

Molding Process Makes Optical Lenses in Bulk

➤ SMALL OPTICAL lenses of eyeglass size can now be produced in quantity, as finished articles without grinding and polishing, by a molding process which is carried out in an atmosphere of hydrogen.

The products of the new method, while satisfactory for many uses, do not have the optical quality of high precision polished lenses. An improved press, however, is expected to yield a product accurate enough for some telescope systems. The present lenses produced by this method are less than two inches in diameter.

The process was developed by scientists of the Eastman Kodak Company, and a report has been prepared by them which has become available from the Office of Technical Services, U. S. Department of Commerce.

Before this method was discovered it had not been possible to mold suitable lenses which were free from defect due to the uneven chilling of the hot slug of glass on contact with the mold.

Science News Letter, November 9, 1946

PHYSIOLOGY

Electric Thermometer Measures Blood in Vessels

➤ BLOOD temperatures may now be measured directly in the blood-stream itself by means of a new electric thermometer, announced by the Office of Technical Services, Department of Commerce.

The minute sensitive part of the apparatus, known as a thermistor, is embedded in a glass bead only one twenty-fifth of an inch in diameter. This in turn is encased in the tip of a rubber tube so slender that it can be pushed through a hollow needle inserted into a blood vessel.

From the thermistor a pair of slender wires lead back to a small box containing apparatus for measuring changes in electrical resistance. From these changes, the blood temperature can be determined within a range from 97 to 133 degrees Fahrenheit.

The new blood thermometer was developed during the war by William G. Fastie and Louis F. Drummeter, Jr., under a contract with the Chemical Warfare Service.

Science News Letter, November 9, 1946

MEDICINE

Bankruptcy For Blood Banks

The war emergency is over, but people still need blood. Although plasma is still used, nothing takes the place of whole blood.

By JANE STAFFORD

➤ LITTLE more than a year ago millions of Americans were proud and eager to give their blood to the Red Cross, that some wounded soldier might have a chance to live.

Today, now that the killing and the wounding of war has ceased, there is a shortage of human blood needed for the serious casualties and accidents of peacetime—and to continue to help wounded veterans in their long-continued fight toward health.

Doctors are worried over the shortage that the public does not know about—a shortage that should be easier to do something about than the shortages of meat, nylon, fats, clothes, houses and cars.

There have been reconversion difficulties in the supplying of the vital red fluid that can save a life. During the war it was on a national scale. Now it is a matter to be handled locally to a large extent, with each community on its own.

Low Blood Deposits

And the deposits in the blood "banks" in most hospitals and community health centers are dangerously low—not because people are callous or unwilling, but because they do not realize that "working capital" is just as necessary to a blood bank as money on deposit to a financial bank.

If you had walked into the community blood bank of the Nation's Capital a few weeks ago, you would have seen a single solitary bottle of whole blood on deposit there in its refrigerator. There should have been 20 bottles of various types, which any banker would agree would not be an excessive working capital even if each bottle were worth a thousand times more than the $40 or so that is the cost of a bottle of human blood.

If a score or two of the champion blood donors of the war days volunteered for peacetime service, a blood banking system for each locality in the nation could be "financed" and accident crises that are likely to come to any area would be sure to be met.

The peace needs for blood are somewhat different from war's demands. Whole blood, not plasma, is needed now. And the quantities are far smaller.

There is not a shortage of plasma, the fluid part of the blood. At the end of the war, the Red Cross had more than a million bottles of this material. This surplus plasma was made available to the public through health departments or approved medical organizations or institutions. Blood banks, even when running low on whole blood, are likely to have plasma on hand. This is because after the whole blood has become too old to use, the plasma can be drawn off and kept, either in liquid form, or frozen and dried.

Plasma is an extremely valuable material for treating certain conditions, such as shock from severe burns or wounds.

VOLUNTEER—A few have not forgotten that the Red Cross is still collecting vitally needed blood. Blood banks for civilians are running dangerously low.

When large amounts of blood are lost, however, nothing takes the place of whole blood. That is why, toward the end of the war, the Red Cross began supplying the Army and Navy with whole blood as well as with blood plasma and albumin. This would have been done earlier if a method had been discovered sooner for keeping the whole blood fresh from the time it was collected until it could be flown to Army and Navy surgeons treating the wounded overseas.

Hemoglobin Important

Whole blood is red. Its color comes from the chemical hemoglobin, which transports oxygen to all parts of the body. When oxygen is lacking, death follows. Breathing air containing oxygen into the lungs is not enough. The oxygen must get from the lungs to all parts of the body. It does this via the hemoglobin in the red cells of whole blood.

When a healthy person loses the hemoglobin and red cells contained in one pint of blood, he can quickly rebuild more red cells and hemoglobin from food. Within eight weeks or less the deficit is made up. A severely wounded or injured person who has lost more than a pint of blood cannot do this fast enough. He needs fresh supplies of whole blood to tide him over until his body can start rebuilding plentiful supplies of hemoglobin and red cells on its own.

Lack of Blood

Supplies of whole blood for patients dying of hemorrhage were obtained until shortly before the war from donors called on when the emergency arose.

No one knows how many men, women and children died because a donor could not be found in time. Devoted relatives and friends would answer the call to give a pint of blood, only to find to their grief that their blood was useless. It did not belong to the same group as the patient's blood. Injecting it into the patient's veins would kill him instead of saving him.

To meet these calamities, hospitals kept and still list professional donors. These were men, and occasionally women, in the community whose blood had been grouped and tested for absence of disease germs. When a patient with group A blood needed blood, group A

donors on the list were called. This often involved fatal delays.

Blood Typed

First, the patient's blood must be typed. Then the donor list consulted. Then the phone calls made. One, two, three or maybe all of the donors of the right blood group may be out. When one is reached, he may just have finished dinner, or a bed-time or party snack. If this is the case, he cannot give blood because if he has eaten within the past five hours, his blood may contain substances that would harm the patient. When a suitable donor is finally located, there is further delay while he gets to the hospital.

This procedure may take two or three hours. If the blood is needed in the middle of the night, as so often happens in cases of automobile accidents, or homicidal or suicidal attempts, delay in getting a donor may be even greater.

Contrast that with the following report from a large eastern hospital:

At 1:30 a.m. a 17-year-old expectant mother arrived at the accident room after a 35-mile trip by ambulance. She had a deathly pallor, her pulse could scarcely be detected. Death seemed a matter of minutes.

No time was lost in waiting for results of the test to show what her blood group was, or to type the blood of the young husband who had come with her. A bottle of group O blood, called "universal donor" blood because it is usually safe for persons of all groups, was swiftly brought from the hospital blood bank.

Immediate Transfusion

At 1:40, within 10 minutes of her arrival, she was given a transfusion. With the blood still running into her veins, she was taken to the operating room. There, without interruption, she was given two more pints of blood while the surgeon was operating. By that time her blood had been typed. It was group A and the hospital bank had plenty of A blood on deposit. The following morning, because her blood was still very low in hemoglobin, she was given another pint of group A blood from the bank.

The most heroic efforts, under the old conditions, could not have provided this quantity of blood soon enough. Fortunately for this young girl, the hospital's blood bank was not bankrupt. It takes many donors, volunteer or paid, to keep blood banks solvent.

BLOOD NEEDED—Blood for transfusions is needed for many of the 90,000 wounded still in Army hospitals such as this man at Walter Reed hospital.

Source of Donors

Relatives and friends of patients who get transfusions are one possible source of blood supplies for the banks. At the hospital where this patient had her transfusions, her hospital bill may have had a charge for four pints of blood—to be paid in blood. At this particular hospital, no patient, private or ward, can buy blood from the bank for cash. They may pay a professional donor for blood for the bank, or they have relatives and friends come in to give blood.

At some hospitals, there is a charge of $40 for each pint of blood from the bank. If the patient protests he cannot pay this charge, he is told that for each pint of blood repaid to the bank, $10 will be taken off his bill. Hospitals may themselves buy blood from professional donors and store it in their banks, charging the patients as the blood is withdrawn. This makes the blood costly. The hospital usually pays $25 a pint to its professional donors.

In addition, there may be a $10 charge to the patient to cover the typing and testing of the blood. In a good many hospitals there is also a $5 or $10 charge for what is called the "transfusion set." This includes the apparatus and the services of the intern who watches the patient afterwards, going in every hour or so to check on a possible bad reaction to the transfusion.

Some cities have community blood banks for all hospitals to draw on. Ideally, the hospital would send to the bank a relative or friend of the patient's to give a bottle of blood for each bottle withdrawn. In practice, this does not work out. Once the emergency is over, doctors, friends and relatives seem to lose their enthusiasm. So the bank is obliged to charge for the blood. The price is $25 per bottle.

Refund for Blood

If a patient's relative does give a pint of blood to the bank, the patient is refunded $15. If a second pint is given, the bank refunds $10. This bank is a non-profit organization and gives blood free to those unable to pay, if the doctor in charge signs a statement that he has not charged a fee.

A Transfusion Credit slip is issued to anyone who donates blood for himself. In that way, a man can build up a balance in the blood bank, to be drawn on in case of need by himself, a relative or a friend.

Denver, Miami, New York City, Washington and Cincinnati have community blood banks. In Seattle, a prominent philanthropist raised $250,000 among a few citizens to start a community bank, then launched a community campaign for funds for maintenance and future upkeep.

Scientific research during two wars made possible blood banks and new uses of human blood to fight death and disease. In World War I, Dr. E. H. Robertson of the U. S. Army set up

Do You Know?

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Four *chemical plants* are to be constructed in Egypt at a cost of approximately $8,000,000 to produce chemicals for the Middle East; an order for the plants has been placed in America.

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From Page 299

blood banks to help the wounded. Blood was donated by healthy or recovered soldiers at the rear, dextrose was added to preserve it, and it was kept in refrigerators until it could be sent up to the front.

Midway between the two wars, the Russian scientist, Dr. S. S. Yudin, began experimenting with freshly drawn cadaver blood which he preserved for transfusions. Results were good and thousands of transfusions of this kind were given. The blood has to be drawn within six hours after death from healthy persons who die suddenly. American doctors realized there would not be a sufficient supply of such blood in this country to meet the demand.

First Blood Bank

The idea of obtaining blood donations from friends and relatives of patients and storing it for future transfusions was developed by the late Dr. Bernard Fantus at Cook County Hospital in Chicago. The first living donor blood bank in the world was established at this hospital in 1937.

A brief three years later came news of still another advance in blood transfusions. This was the development of methods for drying plasma, the liquid part of the blood, so that it could be kept safely for months and years, instead of a week or 10 days, and could be transported easily, compared to the difficulties of transporting whole blood.

Millions of bottles of dried plasma, from blood donated to the Red Cross, were shipped overseas for the war wounded. This vital stuff, however, still took considerable space, and shipping space was at a premium during the war.

From scientific laboratories again came a solution to the problem in the form of blood albumin, a more concentrated and therefore space-saving fraction of the blood. Pioneer of this development was Dr. Edward J. Cohn of Harvard.

Valuable by-products of blood were also obtained in Dr. Cohn's fractionation process that gave albumin for our war wounded. Among these are a globulin for protection against measles and substances to check bleeding during delicate surgical operations.

Newest type of blood bank is the one developed at Paterson, N. J. Mothers and babies threatened with death because of a difference between the mothers' and fathers' blood will be saved through this kind of blood bank. Actually it is more a club than a bank. Members are all persons having Rh negative blood.

Rh negative blood is relatively rare. It is often difficult to get the small amount needed for typing the blood of the mother, much less enough for transfusions for baby and mother. When they can get enough of the necessary blood serum, blood banks type their blood for this factor, as well as for the blood groups.

Mothers and babies, civilian victims of accidents, patients facing major surgical operations, many of the 90,000 war wounded still in Army hospitals throughout the world need blood. At the 22 Army general hospitals in the United States treatments requiring whole blood continue around the clock, Major-General Norman T. Kirk, Surgeon General of the Army, reports.

Scientists have made it possible to help all these if the public will help keep the blood banks out of bankruptcy.

Science News Letter, November 9, 1946

INVENTION

Device Saves Fuel to Warm Passenger Space of Planes

➤ THE LATE Henry J. DeN. McCollum of Chicago must have done what many other airplane passengers do: watched the red-hot exhaust pipe and worried a bit about the waste of costly fuel it represented. Unlike the rest of us, he undertook to do something about it, and U. S. patent 2,408,867 covers his system for warming the passenger space and de-icing the wings with radiant heat from this source.

Basically, the idea is very simple. It consists in putting alongside the exhaust pipe a long reflected or parabolic cross-section, its focus directed towards an infra-red-transmitting glass window in the side of the fuselage. Back of this window, the heat rays strike a black-painted duct which is part of the plane's air-circulating system. Shutters facilitate control.

The radiant de-icing system is also simple. A source of radiant heat near the root of the wing directs its beam towards the tip. The internal wing struts are perforated to let the rays pass through. At intervals, angled reflectors, also perforated in a carefully worked-out pattern, direct the heat against the inside of the leading edge.

Science News Letter, November 9, 1946

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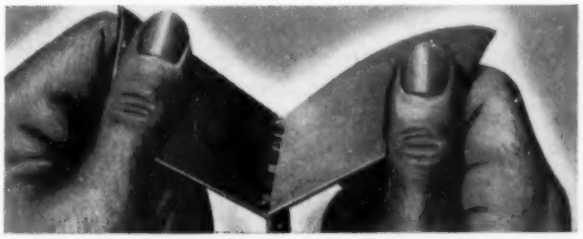

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ORNITHOLOGY

Trumpeter Swan Increases In Population During Year

➤ THE TRUMPETER swan, believed to be an extinct species only 40 years ago, added a 60 to its comeback score during the past year. A census taken jointly by the U. S. Fish and Wildlife Service and the U. S. National Park Service shows a total of 361 birds, as compared with 301 in 1945.

Most of the known nesting sites are concentrated on the Red Rock Lakes Refuge in Montana and in one valley in the northeastern part of Yellowstone National Park. The remaining population is scattered over adjacent areas in the Northwest.

The trumpeter swan, a magnificent bird with an eight-foot wingspread, was once fairly abundant. But reckless killing for their breast skins and down during the latter part of the nineteenth century, combined with drainage and cultivation of their nesting areas, practically wiped the species out.

In 1907, a few survivors of the supposedly extinct species were discovered, and the long, slow job of helping the birds to survive was begun. Even in 1935, however, the annual August census showed only 73 birds, and the upward trend of the curve has been notched with occasional setbacks after unfavorable seasons.

Science News Letter, November 9, 1946

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ORNITHOLOGY

NATURE RAMBLINGS
by Frank Thone

Roads in the Sky

➤ WILDFOWL have been migrating southward steadily for several weeks, and there are still some flocks to go. It is the time of year when men who like to do a day's shooting, in season, find it hard to stick to their jobs.

When the birds fly south in autumn, and again in spring when they return to their nesting grounds in the North, they do not just fly in the general direction they want to go. They have certain great migration routes, as well defined as the routes followed by commercial airlines, and they stick to them season after season. Not improbably these great flyways, as they are called, originated at the close of the Ice Age, 20,000 or 30,000 years ago.

The U.S. Fish and Wildlife Service, together with the corresponding government agencies in Canada and Mexico, have been making flyway studies for years, employing every known means for keeping track of the migrating waterfowl. Airplanes are the latest facilities for migration studies that have been placed at the disposal of these scientists of the out-of-doors.

There are four main flyways, it has been found: one along either coast, one down the Mississippi River and one along the High Plains, just east of the Rockies. A subsidiary flyway down the Great Basin area should perhaps be considered really a part of the latter. Each flyway is able to provide what the migrating birds need: landmarks visible in dim light, water areas not too far apart, for resting purposes, and opportunities to forage for food.

Since North America is a roughly triangular area, with the narrow end at the south, there is a convergence or funnelling effect on all these flyways. Ducks that fly down the Atlantic coast, winter in Florida and the West Indies, for example, converge from nesting grounds as far west as the MacKenzie river basin and as far east as the southern tip of Greenland. Other ducks from as far west as Bering strait and as far east as Baffin land use the Mississippi flyway and winter along the Gulf coast. Similar funnellings take place in the northern parts of the other two flyways, though their eastern boundaries are not quite so far east. Birds following these two flyways winter farthest south, spreading over most of Mexico and Central America and into the northern part of South America.

There is thus a good deal of overlapping, both in areas of origin and in wintering grounds. Yet the birds seem to be able to sort themselves out when they go home in the spring.

Science News Letter, November 9, 1946

OPTICS

Aluminum Surfaces Make Better Mirrors

➤ BETTER MIRRORS, with aluminum, reflecting surfaces, are made by a simple evaporation method explained to the Optical Society of America by Noel W. Scott of the Radiation Engineering Branch of the Army Engineering Board, Fort Belvoir, Va.

Aluminum is used as the reflecting material because evaporated aluminum films have a high reflectivity in all useful spectral ranges. The method will have its principal application in making mirrors for scientific instruments.

The fine grained smooth surface is important for the deposition of effective protective coatings on the mirror and for minimizing diffuse reflection. As protection for the mirror surfaces silicon oxide layers are used.

Science News Letter, November 9, 1946

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Books of the Week

AIRPORTS: Design, Construction and Management—Horace Glidden, Hervey Law, and John Cowles—*McGraw-Hill,* 583 p., illus., diagrs., tables and graphs, $7. Here is a book covering all aspects of airport design, construction, and management, to give the student a sound, accurate knowledge of each of the component parts of an airport, the requirements and factors involved in its location and design, and the basic principles underlying its functional operation and management.

BLUE ANGELS AND WHALES—Robert Gibbings—*Dutton,* 153 p., illus., $3. This book is an enchanting excursion in warmer and exotic waters near Bermuda. The author describes and illustrates fish that swim on their heads, and others that swim backwards, with false-faces to complete the illusion. Every nook of coral architecture seems to have its amazing inhabitant, armed with some cunning trick that enables it to survive.

EDUCATION: America's Magic—Raymond M. Hughes and William H. Lancelot—*Iowa State College Press,* 189 p., maps and tables, $2.50. A book that discusses the progress and problems of universal education in the 48 states.

ENCYCLOPEDIA OF PSYCHOLOGY—Edited by Philip L. Harriman and written by many contributors—*Philosophical Library,* 897 p., illus., tables, charts, and graphs, $10. This volume presents to the student, as well as to the intelligent layman, an up-to-date and complete survey of all the major issues and concepts in the field of psychology.

GOATS AND KIDS—*Encyclopaedia Britannica Press,* 40 p., illus., 50 cents. The extraordinary shots in this book not only reveal the unusual life of the goats, but tell in full page photos of the adventures of two kids who continue to escape from their pen. Encyclopaedia Britannica True Nature Series, Book 9.

GUGGEMHEIM MEMORIAL FOUNDATION: 1943 and 1944 Reports of the Secretary and of the Treasurer—*Guggenheim Memorial Foundation,* 384 p. An impressive record of the work of a great institution in providing through fellowship for the future intellectual and artistic leadership of mankind.

KAPUTT—Curzio Malaparte—*Dutton,* 407 p., $3.75. The story is a remarkable panorama of the moral and physical disintegration of modern Europe. All phases of life in a decadent society under the impact of Nazi domination are vividly illuminated.

MEN AGAINST CRIME—John J. Floherty—*Lippincott,* 255 p., illus., $2.50. This book contains a brief history of the development of the Treasury Department, as the country developed. There is a special chapter on qualifications for the secret services in many branches and one on the lie detector and its use.

METALLURGY—Carl G. Johnson—*American Technical Society,* 418 p., illus., diagrs., and charts, $5. This textbook presents in a simple manner some of the available knowledge concerning the manufacture and behavior of the many metals and alloys in use in our modern civilization.

THE OPERCULATE LAND MOLLUSKS OF THE FAMILY ANNULARIIDAE OF THE ISLAND OF HISPANIOLA AND THE BAHAMA ARCHIPELAGO—Paul Bartsch—*U. S. Printing Office,* 264 p., tables and plates, 75 cents. U. S. National Museum Bulletin 192.

PRAIRIE WINGS: Pen and Camera Flight Studies—Edgar M. Queeny with explanatory sketches by Richard E. Bishop—*Ducks Unlimited, Inc.,* 256 p., diagrs. and illus., $15.

THEIR MOTHER'S SONS—Edward Strecker, M.D.—*Lippincott,* 220 p., $2.75. This is a book about Mother, the great American "Mom" and what she is doing to the young men of America. In its pages a psychiatrist describes a new American tragedy—the millions of young men in this country today who live in confusion and emotional chaos condemned by millions of well-meaning and unthinking "Moms" who will not cut the apron strings between them and their sons.

Science News Letter, November 9, 1946

SPINOZA

Portrait of a Spiritual Hero

By RUDOLF KAYSER

Preface by

ALBERT EINSTEIN

THIS is more than the true life story of one of the world's greatest philosophers. It is also a history of Europe's political upheaval of the 17th Century and an Odyssey of the Jews of Spain and Portugal.

Born in Holland in 1632 of Portuguese Jewish parentage, Spinoza's eventful life was a constant struggle and search for intellectual freedom and honesty. In the background is the great drama of war-torn Europe and the fall of the Dutch Republic, the "little America" of the 17th Century, which offered the fleeing Jews an asylum.

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·New Machines And Gadgets·

⚙ *PHONE silencer, for voice privacy, office quiet and improved phone hearing, utilizes a novel acoustical arrangement which directs the important tones directly into the transmitter and absorbs other tones in a special chamber. This absorption chamber is filled with fiber glass.*

Science News Letter, November 9, 1946

⚙ *FIRE ALARM system is designed to prevent false alarms. The informer breaks the glass of the box and presses a button. A voice from the fire station immediately asks where the fire is. A trick question or two often traps a person if giving a false alarm.*

Science News Letter, November 9, 1946

⚙ *MAGNET, for recovering tools dropped in deep water, or guns and knives hidden from police in rivers and harbors, is made of disks of magnetic alnico alloy separated by slightly larger steel pole pieces. No batteries are required. In its ordinary assembly, it can pick up a weight of 300 pounds.*

Science News Letter, November 9, 1946

⚙ *FATHOMETER, for small fishing and pleasure boats, employs the same echo-sounding principle used in Navy and commercial vessels. The entire system consists of an easily installed control unit, projectors and a power supply. It gives accurate depth measurements up to 400 feet.*

Science News Letter, November 9, 1946

⚙ *SHIPPING container, refrigerated, has a magnesium cooling unit inside that is operated by gases emanating from dry ice. The box itself, shown in the picture, weighs 20 pounds empty and has an outer wall of vulcanized rubber and a lining of aluminum, with a light insulating material between them.*

Science News Letter, November 9, 1946

⚙ *PORTABLE DARKROOM, for developing photographs, is a complete prefabricated unit with stainless steel sink and worktable. It can be assembled by one man in six hours. Sponge rubber is used to give tight wall joints, and the hinged roof, which when open completely covers the walls, contains the electric wiring.*

Science News Letter, November 9, 1946

⚙ *SELF-WRINGING mop with a sponge head of synthetic rubber makes housework easier. The highly absorbent oblong-shaped mop is pushed over the floor with little effort. It is fitted on a metal bracket with rods running through lengthwise. A knob at one end, when pulled, squeezes the water out.*

Science News Letter, November 9, 1946

⚙ *OBSERVATION cars, with narrow upper decks covered with glass roofs and sidings, are now on the rails. The observation seats, over the center aisle of the car, are reached by stairways from the ordinary floor.*

Science News Letter, November 9, 1946

If you want more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, 1719 N St., N. W., Washington 6, D. C., and ask for Gadget Bulletin 336. To receive this Gadget Bulletin without special request each week, remit $1.50 for one year's subscription.

Question Box

AERONAUTICS

By what means does the Gyroglider glide to earth? p. 294.

ENTOMOLOGY

Why take the temperature of a grasshopper? p. 295.

MEDICINE

Do blood banks need your blood? p. 298.

What communities need fear plague and from what source? p. 294.

What disease will erythrin fight? p. 292.

Who won the Nobel Prize? p. 291.

NUTRITION

What has sauerkraut been found good for? p. 294.

ORNITHOLOGY

What are results of the trumpeter swan census? p. 302.

What are the four great migration routes for water-fowl? p. 302.

PSYCHIATRY

What basic convention makes Germans feel like puppets? p. 293.

What past event is the cause of much mental illness today? p. 296.

TELEVISION

What is new about color television? p. 295.

Where published sources are used they are cited.

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